

WHAT IS CLAIMED IS:

1. A vehicle seat structure, which includes a seat cushion, a seat belt provided in said seat cushion and a forward buttocks slippage preventive element provided in a forward portion of said seat cushion, said forward buttocks slippage preventive element being displaceable to an operative position in a forward buttocks slippage locus along which a buttocks portion of a passenger is to be slipped to a forward side of said seat cushion under influence of excessive forward inertia in an emergency case such as a collision, thereby preventing forward slippage of said buttocks portion on said seat cushion, comprising:

a pair of arms rotatably provided in said seat cushion, said pair of arms each having one end to which said forward buttocks slippage preventive element is fixed, such that rotation of said pair of arms causes said forward buttocks slippage preventive element to displace between said operative position and an inoperative position where said forward buttocks slippage preventive element is located away from said operative position and thus away from said forward buttocks slippage locus;

an actuator plate rotatably provided in said seat cushion, said actuator plate having a guide hole formed therein,

said pair of arms having a connecting pin formed in another end thereof, said connecting pin being slidably engaged in said guide hole of said actuator plate;

a biasing means so arranged as to biasingly cause said actuator plate to rotate to a selected one of a first limit point corresponding to said operative position and a second limit point corresponding to said inoperative position in relation to a dead point, thereby allowing said actuator plate to be biasingly toggled between said first and second limits in relation to said dead point;

a first stopper means disposed at said first limit point;

a second stopper means disposed at said second limit point;

a seat belt control means for normally biasing said seat belt to a home position and allowing said seat belt to be movable toward the forward side of said seat cushion by a great forward load applied from said passenger who is about to be moved to the forward side of said

seat cushion under the influence of said excessive forward inertia in said emergency case;

and

a connecting means for operatively connecting said seat belt control means with said connecting pin,

wherein, normally, said actuator plate is biased by said biasing means to said second stopper means, such that said biasing means is located above said dead point, thereby resiliently retaining said forward buttocks slippage preventive element in said inoperative position, and wherein, in said emergency case, said great forward load draws said seat belt toward said forward side through said seat belt control means, while being imparted through said connecting means to said connecting pin, thereby in turn causing said actuator plate to rotate toward said first stopper means, overcoming a biasing force of said biasing means, so that said biasing means is displaced to a point below said dead point, while simultaneously causing rotation of both said pair of arms and said forward buttocks slippage preventive element in a direction to said operative position, as a result of which, said actuator plate is biased to contact with said first stopper means, whereby the actuator plate is positively retained at a point to prevent rotation of said pair of arms toward said inoperative position, thereby preventing further forward rotation of said forward buttocks slippage preventive element from said operative position.

2. The vehicle seat structure as claimed in Claim 1, wherein said guide hole is formed in a free end portion of said actuator plate in a sinuous manner along a locus in which said connecting pin is to be moved in said actuator plate with rotation of said pair of arms, due to a deviation in circular orbit between said another end of said each of said pair of arms and said free end portion of said actuator plate, wherein said guide hole has one end region and another end region, wherein, when said actuator plate is biased by said biasing means to contact with said second stopper means, said connecting pin is engaged in said one end region of said guide hole, so that said forward buttocks slippage preventive element is retained in said inoperative position, and wherein, when said actuator plate is biased by said biasing means to contact with said first stopper means, said connecting pin is engaged in said

another end region of said guide hole, such that said actuator plate is positively retained at a point to prevent said rotation of said pair of arms toward said inoperative position, thereby preventing further forward rotation of said forward buttocks slippage preventive element from said operative position.

3. The vehicle seat structure according to Claim 2, wherein, when being biased by said biasing means to contact with said first stopper means, said actuator plate is retained in a substantially horizontally extending state, while said pair of arms are retained in a substantially vertically extending state to thereby retain said forward buttocks slippage preventive element in said operative position, and wherein said guide hole is of such a sinuous manner that, when the actuator plate is retained in said substantially horizontally extending state, said another end region of the guide hole is brought into a downwardly opened state, and said connecting pin is engaged in the thus downwardly opened another end region of the guide hole, whereby said pair of arms and said forward buttocks slippage preventive element are positively prevented against rotation toward said inoperative position, while allowing said actuator plate to be rotated upwardly from said substantially horizontally extending state to thereby cause said pair of arms and said forward buttocks slippage preventive element to rotate toward said inoperative position.

4. The vehicle seat structure as claimed in Claim 1, wherein said dead point is defined near to said second limit point.

5. The vehicle seat structure as claimed in Claim 1, wherein said forward buttocks slippage preventive element is a horizontal bar element whose two ends are fixedly connected between said pair of arms.

6. The vehicle seat structure as claimed in Claim 1, wherein, said actuator plate has a free end portion in which said guide hole is formed and another end portion rotatably connected with said seat cushion as a center of rotation, and wherein said biasing means

comprises a pulling spring extended between said free end portion of said actuator plate and a point away from said another end portion of the actuator plate.

7. The vehicle seat structure as claimed in Claim 1, wherein said seat belt control means comprises: a seat belt buckle releasably connected with said seat belt; a rotary link member rotatably provided in said seat cushion, said rotary link member being connected with said seat belt buckle at one end thereof; a return spring means for resiliently biasing said rotary link member in one direction to retain said seat belt buckle at a home position; a cable wire; and an elongated connecting ring having an elongated hole formed therein, wherein said connecting pin is slidably engaged in said elongated hole of said elongated connecting ring, and wherein said cable wire is extended and connected between another end of said rotary link member and said elongated connecting ring, with such an arrangement that, in said emergency case where said great forward load draws said seat belt buckle and seat belt toward said forward side, said rotary link member is rotated in another direction, overcoming a biasing force of said return spring means, thereby drawing said cable wire to cause sliding movement of said connecting pin in and along said elongated connecting ring, which results in causing said actuator plate to rotate from said second stopper means toward said first stopper means against a biasing force of said biasing means, so that said biasing means is displaced to a point below said dead point, while simultaneously causing rotation of both said pair of arms and said forward buttocks slippage preventive element in a direction to said operative position.

8. The vehicle seat structure according to Claim 7, wherein a pair first and second stopper means are provided on opposite sides of said rotary link member so as to limit a range of rotation of the rotary link member, and wherein said dead point is defined near to said second limit point and a distance between said pair of first and second stopper means is reduced, thereby minimizing a stroke of movement of said seat belt buckle to and away from said seat cushion.